

## **COVERED MALLS PLAN CORRECTION LIST**

Plans have been reviewed for compliance with the 1999 Standard Building Code, 1997 Standard Mechanical Code, 2003 National Fire Codes, and the 1974 State Public Building Accessibility Act (2002 North Carolina Accessibility Code with the 2004 Amendments). The following list does not necessarily include all deficiencies. See additional items on the cover sheet.

**PLEASE NOTE:** Circled items require correction by revised plans, addenda, field orders, or change orders before plans can be approved for construction. Answers in letterform are not acceptable. **Starting construction before plans approval may be considered as just cause, by the State, to issue a stop work order. [Rule 0780-2-3-02(4)]**

### **I. PROCEDURES**

**NOTE:** In order to expedite processing of this project please refer to “TFM NUMBER” on transmittal letter when submitting any correspondence, plans, specifications, etc. If not provided, it will cause a delay.

- \*1. Provide two copies of plans and one copy of specifications sealed (with signature and date) by a registrant in accordance with the Architects and Engineers Licensing Law Rules. [Rule 0780-2-3-.03 and A&E Rule 0120-2-.08(3)]
- \*2. Provide a second set of sealed final plans and revisions for the job site set. [Rule 0780]
- 3. Buildings must be designed to the minimum State of Tennessee adopted codes and standards.

Provide the following code information on the cover sheet of the plans for new and existing buildings:

- a. SBCCI Standard Building Code, 1999 edition, including SBCCI Standard Gas Code, 1999 edition, and SBCCI Standard Mechanical Code, 1997 edition,
- b. Uniform Fire Code (NFPA 1), 2003 edition, including each reference in NFPA 1, Chapter 2 (excluding NFPA 5000), published by the National Fire Protection Association. Each reference in NFPA 1 Uniform Fire Code, Chapter 2 to an NFPA code or standard shall be deemed to be the edition printed in the National Fire Codes, 2003 edition.
- c. 1974 State Public Building Accessibility Act (2002 North Carolina Accessibility Code with the 2004 Amendments), or CABO/ANSI A117.1-1992.
- d. Occupancy Group per Chapter 6, NFPA 101, 2003 edition
- e. Construction Type, protected or unprotected, sprinklered or unsprinklered per Chapter 6, 1999 SBC
- f. Number of stories, and/or height of building.
- g. Area of building according to SBC Table 500 for new and existing. Show building area increase calculations per SBC 503.3.

4. Provide a Life Safety Plan showing: Occupant load with occupant load factors for each space based on its intended use; number of occupants using exits according to design as compared to exit capacity of door or stair (which ever is more restrictive); travel distances; and accessible means of egress to a public way identifying location of any area of refuge, required exterior exit doors, exit stair landings, and any elevator for unsprinklered buildings or for sprinklered buildings show the access to the public way from two remote exits of the building. Show all fire rated wall limits for occupancy separations, building compartmentation walls, exit access corridors, stair exits, elevator shafts, mechanical system shafts, and separations from hazards such as storage rooms (50 sf or larger), janitor closets, gas furnace rooms, and laboratories.
- \*5. Complete the Plans Review Submittal Form (PRSF) and remit the required fee. [Rule 0780]
- \*6. The fee has been calculated incorrectly. Balance due is \_\_\_\_\_. Please return the validated copy of the original PRSF with the outstanding balance. We are refunding \_\_\_\_\_. (The refund process takes approximately 6 to 8 weeks.)
7. Information on the plans review submittal form is incorrect as follows: \_\_\_\_\_
8. Code deficiencies cited in the inspection report (dated/requested) \_\_\_\_\_ must be addressed.
- \* 9. Provide the following flow test data on the plans for fire hydrant(s) used to meet the 500 feet or less hose lay requirement in accordance with the local authority having jurisdiction. [2002 NFPA 24 7.2.1] Show flow test data next to the hydrant tested. Flow test must have been conducted within the last six months.
  - a. Static pressure \_\_\_\_\_ psi  
Residual pressure \_\_\_\_\_ psi (20 psi minimum)  
Flow \_\_\_\_\_ gpm (500-gpm minimum)  
[Department of Environment & Conservation Rules and Regulations 1200-5-1-.17 paragraph 18]
  - b. Party responsible for taking test (name and address)
  - c. Date test taken: \_\_\_\_\_ Time test taken: \_\_\_\_ a.m./p.m.
  - d. Elevation of test hydrant: \_\_\_\_\_
10. Plans for hotels/motels must be submitted for review and approval to the Department of Health, Division of General Environment Health, Cordell Hull Building, 425 5th Avenue North, 6th Floor, Nashville, TN 37247 (615-741-7206) prior to the start of construction per TCA 68-14-320.
11. Prior to any approval being granted, items with an asterisk (\*) must be resolved.
12. One or more of the following forms are enclosed:
 

<ol style="list-style-type: none"> <li>a. Plans Review Submittal Form</li> <li>b. Handicapped Correction List</li> <li>c. Accessible Means of Egress Correction List</li> <li>d. Hood and Duct Design Intent</li> <li>e. Sprinkler Design Intent</li> </ol>	<ol style="list-style-type: none"> <li>f. Standpipe Design Intent</li> <li>g. Fire Pump Design Intent</li> <li>h. Tank</li> <li>i. Other _____</li> </ol>
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## II. GENERAL

- \*1. Identify use of rooms and spaces.
- \*2. Provide design live load values on plans for wind, roof, floor, stairs, guard and hand railings, seismic per SBC 1607.1.2, etc. [SBC Chapter 16] For existing buildings that have not been reviewed and approved by our office, provide "as built" plans from a Tennessee licensed structural engineer or an evaluation report sealed, signed, and dated from a Tennessee licensed structural engineer. The evaluation report must show the design live loads for wind, roof, floors, stairs guard, hand railings, and seismic.
3. Provide door and door hardware schedule.
4. Provide glazing schedule. Specify size and type of glazing.
5. Provide interior finish schedule. [SBC 803.2]
6. Provide a complete legend for \_\_\_\_\_.
7. Provide legend for all fire rated wall enclosures to identify specific fire ratings and their limits (i.e., smoke partitions or barriers, 30-minute, one, two, and four-hour fire ratings).
8. Show wall fire ratings on structural, mechanical, plumbing, electrical, and fire protection drawings.
9. FIRE STOPPING XX Specify test number, hourly rating, and provide detail(s) in their entirety which include application instructions, material specifications and design illustrations without modification or manipulation directly on plans of current U.L. (or other approved third party nationally recognized testing laboratory) tested systems for each size and type of penetrating object such as metallic and nonmetallic electrical, plumbing, HVAC piping and ductwork, fire protection piping, electrical wiring, or conduit through fire resistive assemblies SBC 705.4 and NFPA 101 8.3.5. The details must be provided directly in the plan set and not in Architectural Supplemental Instruction (ASI), addenda, or within the specifications or project manual. Provide plumbing details for toilet, shower, and tub penetrations at 1-hour fire rated floor assemblies and plumbing penetrations within walls when penetrating 1-hour rated floor assemblies. UL permits the free duplication and inclusion for design professionals in their designs (see "Important Information For Users Of This Directory, Use of This Directory" in Volume 1 of the 2004 printed Fire Resistance Directory - or - at the bottom of each "record" (i.e. UL system number) on the online certification directory available <http://www.ul.com> for UL's terms and conditions of use).
10. WALLS, CEILINGS, FLOOR/CEILING AND ROOF ASSEMBLIES XX Show what UL or other assembly number is being used for the fire-rated roof/ceiling, floor/ceiling, and wall assemblies. [SBC 701.2] Specify that all component parts comply with tested assemblies. Provide detail(s) in their entirety which include design illustrations and material specifications without modification or manipulation directly on plans of current U.L. (or other approved third party nationally recognized testing laboratory) tested assembly. The details must be provided directly in the plan set and not in Architectural Supplemental Instruction (ASI), addenda, or within the specifications or project manual. UL permits the free duplication and inclusion for design professionals in their designs (see "Important Information For Users Of This Directory, Use of This Directory" in Volume 1 of the 2004 printed Fire Resistance Directory - or - at the bottom of each "record" (i.e. UL system number) on the online certification directory available <http://www.ul.com> for UL's terms and conditions of use).

11. JOINT SYSTEMS XX Provide design number, hourly rating, and detail(s) in their entirety which include design illustrations, material specifications without modification or manipulation directly on plans of current U.L. (or other approved third party nationally recognized testing laboratory) tested assembly for fire rated assembly connections such as (wall-to-wall, floor-to-floor, floor-to-wall, head-of-wall, bottom-of-wall, joints) where not inherently tight. The details must be provided directly in the plan set and not in Architectural Supplemental Instruction (ASI), addenda, or within the specifications or project manual. UL permits the free duplication and inclusion for design professionals in their designs (see "Important Information For Users Of This Directory, Use of This Directory" in Volume 1 of the 2004 printed Fire Resistance Directory - or - at the bottom of each "record" (i.e. UL system number) on the online certification directory available <http://www.ul.com> for UL's terms and conditions of use). \_
12. Provide a reflected ceiling plan showing lights, diffusers, sprinkler heads, and smoke detectors.
13. Provide elevator key lock box mounted at 72" AFF to center of the box by each bank of elevators for all University of Tennessee and/or Tennessee Board of Regents residential occupancies containing elevators. The lock box must meet the requirements as specified by the Tennessee Department of Labor and Workforce Development (contact the Division of Boiler & Elevator, Mines, Labor Standards, and Research & Statistics for specifications for more details) and be operated by a common key. Provide mounting details and specifications in plans. [TCA 49-7-136(a)]
14. Provide elevator key lock box mounted at 72" AFF to center of the box by each bank of elevators for all state-owned public buildings under the Department of General Services' control containing elevators. The lock box must meet the requirements as specified by the Tennessee Department of Labor and Workforce Development (contact the Division of Boiler & Elevator, Mines, Labor Standards, and Research & Statistics for specifications for more details) and be operated by a common key. Provide mounting details and specifications in plans. [TCA 4-3-1114(a)]

### III. SITE

- \*1. Show location and footprint of all existing structures, property lines, grade elevations, water mains and other utilities, fire hydrants, fire department access and all ingress/egress to public ways. Include size and location of LP-Gas storage tanks (2001 NFPA 58) and any other above ground storage tanks (2000 NFPA 30 and 30A).
2. Fire department access must be 20 feet wide with a 13 feet 6 inches minimum vertical clearance and a dead end cannot exceed 150 feet unless an approved turnaround radius is provided. [Office Policy and 2003 NFPA 1 18.2] The fire department access road must be within 150 feet of any exterior wall of a building or within 450 feet for sprinklered buildings. [2003 NFPA 1 18.2.2.3 and 18.2.2.5]
3. A fire department access road shall be provided so as to extend to within 50 feet of a single exterior door providing access to the interior of the building. [2003 NFPA 1 18.2.2.2]
- \*4. Fire hydrants must be provided so that any portion of the building's exterior is within 500 feet hose lay of a hydrant measured along vehicle access route. [Office Policy and 2002 NFPA 24 7.2] Check with local code authorities as some jurisdictions require closer spacing.

5. Fire hydrants must have at least a six-inch connection with the main. [2002 NFPA 24 7.1.1]
6. Fire hydrants must be properly supported. [2002 NFPA 24 7.3]
7. Fire hydrant locations for average conditions must be installed at least 40 feet from the building to be protected. [2002 NFPA 24 7.2.3]
8. Fire service mains must not be routed under buildings, unless special protection is provided. [2002 NFPA 24 10.6]
- \*9. Where underground water mains and hydrants are to be provided, they must be installed, completed, and in service prior to construction work. [2003 NFPA 1 16.4.3.1.3 and 2000 NFPA 241 8.7.2.3]

#### IV. **CONSTRUCTION**

- \*1. Building exceeds allowable area/number of stories/height for this type of construction and open space. [SBC Table 500] Sprinklered buildings must comply with NFPA 13 to receive allowable building code height, area, and number of stories. [SBC Table 500, Footnotes h and j]
- \*2. Firewall must be four-hour rated and must be constructed in such a way that the wall will remain standing after the collapse of the structure on either side. [SBC Table 600, Table 705.1.2, 704.5, and Definition 202] Wall must extend minimum three feet above combustible roof. The firewall must extend not less than 18 inches past any combustible projection or extension. Project's structural engineer must state **on the drawings** that. . . "This wall is a four hour fire resistant wall which extends continuously from the foundation to (noncombustible) or through (combustible) the roof, with sufficient structural stability under fire conditions to allow collapse of the construction on either side without collapse of the wall." Provide details showing how wall is structurally independent at roof.
3. Show on foundation plans and roof details the location and limits of all four-hour free standing firewalls.
4. Columns, floors, roofs, exterior and interior (bearing and non-bearing) walls, and girders must be protected in accordance with SBC Table 600 for Type \_\_\_\_\_ construction.
5. Show assumed property line between buildings and provide protection of facing walls and openings as per SBC Table 600 and SBC 705.1.1.
6. Construction Type I and II partitions must be constructed of noncombustible materials or fire retardant treated wood. [SBC 609.2.1]
7. Foam plastic roof insulation must be separated from the interior of the building by a thermal barrier, [SBC 2603.5] unless it complies with FM 4450 or UL 1256.
8. Openings within 15 feet of a property line must be equipped with opening protectives. [SBC 705.1.1]
9. Show draftstopping of attic area in Type V and VI construction. Specify material to be used. [SBC 2305.2.3]

10. Provide attic access openings (minimum 22 inches by 36 inches) and attic ventilation within each draftstop area. [SBC 2309.6 and 2309.7]
11. Exterior and interior walls must be fireblocked at each floor, ceiling, and roof with an approved noncombustible material tested for this purpose. [SBC 705.3]
12. Openings in exterior walls that are within 15 feet of a property line shall be equipped with approved opening protective. [SBC 705.1.1.2]
13. Provide attic access openings (minimum 22 inches by 36 inches) and attic ventilation within each draftstop area. [SBC 2309.6 and 2309.7]
14. Show \_\_\_\_\_ hour fire rated separation between \_\_\_\_\_ and \_\_\_\_\_. [SBC 303.1, 704, and Table 704.1]
15. Fire rated walls must extend tight against the underside of a roof or floor deck or to the underside of a rated smoke tight ceiling which has the same rating as the wall (e.g., two layers of 5/8 inch rated gypsum panels at the ceiling for tenant separation, one hour storage or janitor spaces, and one or two hour rated walls turned horizontally and anchored to the walls for corridors, elevator, stair, and breezeway ceilings). [NFPA 101 8.2.2.3] Provide details.
16. Equipment recessed in a fire rated wall must not decrease the rating of that wall. [SBC 705.5]
17. Glazing in one hour rated walls must be wired glass or other tested glazing material, in steel frames, no larger than 1296 square inches with no dimension greater than 54 inches. [SBC 704.2.1.5 , 705.1.3.7 and NFPA 80 Chapter 13]
18. Skylights are not allowed within six feet of rated exterior walls. [SBC 2604.6.7]
19. Skylights or glazing at an angle less than 15 degrees from the vertical must be glazed in compliance with SBC 2405.3.1, 2407, and 2604.
20. A chair rail or other visual barrier is required at glass panels that may be mistaken for door. [NFPA 101 7.2.1.1.2]
21. Glazing in rated doors must be wired glass or other tested glazing material, and must be limited in size according to door rating. [SBC 705.1.3.6]
22. Glazing in non-rated doors, sliding doors, storm doors, within 24 inches of doors, within 18 inches above finished floor, and exceeding 9 square feet within 36 inches of walking surface must be safety glazed, tempered, and pass the test requirements of CPSC 16-CFR, part 1201 and comply with ANSI Z97.1. [SBC 2405.1 and .2]
23. Specify that fire rated doors must have fire rated frames, hardware, closers, and other rated accessories. [1999 NFPA 80 1-4 Definition of "Fire Door," NFPA 80 1-6.1, 2-4.7, and SBC 705.1.3]
24. Closers and positive latching are required on fire rated doors and doors in smoke tight partitions or barriers. [NFPA 101 7.2.1.8, 1999 NFPA 80 3-4, and SBC 705.1.3.5]

25. Rooms 50 square feet or greater that are used for storage, any size janitor closets, all rooms used for storage of hazardous materials or gas furnaces must be one hour enclosed with 45 minute labeled door assemblies or must be protected by automatic sprinklers with smoke tight partitions with solid doors with self closers. [NFPA 101 36-3.2, 8.1.2, and SBC Table 705.1.2]
26. Fuel fired water heaters with an aggregate input capacity that exceeds 200,000 BTU or 210° F or 120 gallons or rooms 50 square feet and greater must be enclosed in one-hour construction. [NFPA 101 8.4.1 and NFPA 101 36.3.2.1.1] If the space is sprinklered, then provide a smoke tight enclosure. [NFPA 101 36.3.2]
27. Central boiler must be enclosed in one hour rated construction. [SBC 704.1.3.3] Assembly occupancy requires two hours [SBC 704.1.3.3.2]
28. A shaft that does not extend to or through the underside of the roof deck of the building must be enclosed at the top with construction of the same fire resistance as the top most floor protected by the shaft, but not less than the rating required for the shaft enclosure. [SBC 705.2.3.4.1] The rated shaft enclosure must be so constructed that it will provide the required rating from the center of the shaft to the adjacent space.
29. Elevators, shafts, and machine rooms must be enclosed with (one/two) hour fire resistance construction. [SBC Table 705.1.2 and NFPA 101 36.3.1 in accordance with 8.6]
30. Elevators and dumbwaiter hoistway doors and frames must be labeled. [1999 NFPA 80 Chapter 8-1.3.1]
31. Show venting of elevator hoistways serving four stories or more. [SBC 3003.6]
32. Show detail of (one/two) hour construction where HVAC venting duct and metal chimneys pass through fire rated floors and/or roofs. [SBC 2804.4.1 and 705.2.2]
33. Atriums must meet requirements of NFPA 101 8.6.7 and SBC 414. Entire building must be sprinklered with smoke control in the atrium.
34. The mezzanine(s) cannot exceed one-third the floor area (the mezzanine areas combined) to which they are open. If they are over the one-third area, they must be considered a story or stories. [NFPA 101 36.1.4.2.3, Mezzanines shall comply with 8.6.9]

## **V. MEANS OF EGRESS**

1. Provide accessible means of egress incorporating areas of refuge per SBC 1004.3 and NFPA 101 7.5.4. See attached **ACCESSIBLE MEANS OF EGRESS CORRECTION LIST**.
2. Travel distance to reach an exit must not exceed 100 feet in an unsprinklered building or 200 feet in a fully sprinklered building. [NFPA 101 36.2.6] Common path of travel must not exceed 75 feet. [NFPA 101 36.2.5.3]
3. Provide a minimum of two independent exits from the mall sized for all tenants within 100 feet of the exit plus exits for one person per foot of mall width. [NFPA 101 36.4.4]

4. Occupant load for determining required means of egress for covered malls must be based on 30 square feet per person. [NFPA 101 36.1.7(g)] For all other individual spaces see NFPA 101 7.3.1).
5. The total capacity of the means of egress must be sufficient. [NFPA 101 7.3.1.1]
6. When two exits are required from a building or area they must be separated by (one-half/one-third if sprinklered throughout) the diagonal dimension of the building or area served. [SBC 1004.1.4 and NFPA 101 7.5.1.3]
7. The minimum mall width is 20 feet; the minimum clear mall exit width is ten feet. [SBC 413.5]
8. The minimum exit width is 66 inches. [SBC 413.4.6.2]
9. The maximum mall dead end distance is to be less than twice the mall width. [SBC 413.4.8]
10. Exit stairwell doors must be 1 ½ hour and must be rated so that the unexposed side does not exceed 450° F. [SBC 705.1.3.4]
11. Width of stairs must comply with SBC 1007.6, 1112.6, Table 1004, and NFPA 101 7.3.4.
12. Minimum headroom clearance in stair enclosures must be 6'-8". [NFPA 101 7.2.2.2.1 and SBC 1007.7]
13. Stair treads must be minimum 11 inches and risers must be maximum 7 inches but not less than 4 inches (without square nosings) and must be designed in accordance with NFPA 101 7.2.2.2.1, NCHC 4.4., and SBC 1007.3.1.
14. Rise may not exceed 12 feet between floors or landings. [SBC 1007.4.1]
15. Changes in elevation of less than 21 inches in the means of egress must be by ramp or stair complying with NFPA 101 7.1.7. This includes handrails, 13-inch treads, and readily visible treads.
16. New Handrails shall be installed to provide a clearance of not less than 2 ¼ inches between the handrail and the wall to which it is fastened. [2003 NFPA 101 7.2.2.4.4.5]
17. Handrails and guards must be in accordance with NFPA 101 7.2.2.4, SBC 1007.5, SBC 1015, and NCHC 4.4 such as 34" and 42" to top of handrails and guards; handrails on both side of stairs; 23" minimum handrail extension on wall side at bottom of stair; and four inch maximum diameter sphere for intermediate rails in guards. Guards are required on the open side of stairs 30 inches above floor surface. [NFPA 101 7.1.8 and 7.2.2.4]
18. Stairs serving upper floors must be separated by a barrier to prevent travel beyond the level of exit discharge. [NFPA 101 7.7.3 and SBC 1007.1.6]
19. One stair must extend to the roof in accordance with SBC 1008 for buildings four stories and greater in height.
20. Normally unoccupied spaces and hazardous areas may not open into an exit stairwell or exit passageway. [NFPA 101 7.1.3.1(5)]



21. Not more than 50% of the exits may discharge through areas on the level of discharge unless all of the exceptions are met. [SBC 1010.3 and NFPA 101 36.2.7.2]
22. Door swing may not reduce landing to less than one-half its required width. [NFPA 101 7.2.1.4.4 and SBC 1012.1.5]
23. Stairwells must be at least ten feet from adjacent property lines and other buildings on the same lot unless openings are protected by 3/4-hour fire resistant doors or windows. [SBC 1006.2.2]
24. Doors, windows, and openings within ten feet horizontal projection and extending vertically from the ground to a point ten feet above the topmost landing must be 3/4 hour protected, [SBC 1006.2.4 and NFPA 101 7.2.2.6.3(4) and 7.2.2.6.4] and the stairs must be separated from the interior of the building by one hour construction. Interior stairs must be separated in accordance with SBC Table 705.1.2 and 1006.1.3.2 and NFPA 101 7.2.2.5.1 and 7.2.2.5.2.
25. Rooms containing high pressure boilers, commercial refrigeration machinery, large transformers or other service equipment subject to possible explosion must be separated from other parts of the building by fire barriers having a fire resistance rating of not less than one hour with 3/4 hour opening protectives. [NFPA 101 36.3.2.2]
26. Two means of egress must be provided from boiler, incinerator, or furnace rooms which exceed 500 square feet and fuel fired equipment, which exceeds 400,000 BTU input capacity. [SBC 1005.1] Maximum distance of travel to an egress door must not exceed 50 feet. [SBC 1005.1 and NFPA 101 7.12]
27. Exit access corridors shall be one hour rated with 20 minute door assemblies unless the building is fully sprinklered. (SBC Table 705.1.2 and NFPA 101 36.3.6)
28. At least one-half of the required exits must be located so as to be reached without passing through checkout stands. [NFPA 101 36.2.5.8]
29. Dead ends in exits and exit access may not exceed 20 feet. [SBC Table 1004, 1005.2, and NFPA 101 36.2.5.2]
30. Class A stores must have at least one aisle of five feet minimum width leading directly to an exit. [NFPA 101 36.2.5.6]
31. The floor on both sides of any door must be substantially level and may not vary more than 1/2 inch for a distance at least equal to the width of the widest leaf. [NFPA 101 7.2.1.3.2 and SBC 1012.1.4]
32. Doors opening onto a corridor of minimum required width must swing 180 degrees, and not reduce the required corridor width to less than one half during its swing. [NFPA 101 14.2.5.5 and also see 7.2.1.4.4]
33. Each leaf of door in the means of egress must provide 32 inches clear opening and a minimum height of 6'-8", but in no case must any single door exceed 48 inches. [NFPA 101 7.2.1.2.4, SBC Table 1004, and 1012.1.1]
34. Doors serving 50 or more people and stairway doors must swing with the direction of exit travel. [SBC 1012.1.2 and NFPA 101 7.2.1.4.1 and .2]
35. Rooms with more than 50 occupants must have two remote doors swinging in the direction of egress travel. [SBC 1012.1.2]

36. Show that power operated doors are capable of being manually opened to permit exit travel in the event of a power failure. [SBC 1012.2.1 and NFPA 101 7.2.1.9]
37. Panic hardware is required on all doors with a latch or lock in the means of egress from an area having an occupant load of 100 or more. [NFPA 101 12.2.2.2.3]
38. Door swinging in pairs and having a fire protection rating of more than 1 ½ hours shall have an overlapping astragal.
39. Doors swinging in pairs, where located within a means of egress, shall not be equipped with astragals that inhibit the free use of either leaf. These forces shall be applied at the latch stile to achieve the minimum required width.
40. Where there is an astragal or projecting latch bolt that prevents the inactive door of a pair of doors from closing and latching before the active door closes and latches, a coordinating device shall be used. A coordinating device shall not be required where each door closes and latches independent of the other door.
41. Balcony with a seating capacity of over 50 must have two separate means of egress. [SBC 1019.3.1]
42. A balcony or mezzanine having an occupant load of greater than 100 people must have means of egress sized for a floor. The required means of egress cannot lead to the floor below, but may discharge to a corridor which leads to enclosed stairs (within travel distance limitations). [NFPA 101 12.2.4.7]
43. All porches, balconies, raised floor surfaces or landings over 30 inches must have guardrails [SBC 1014.1.2 and NFPA 101 7.2.2.4.1]
44. Every assembly area shall have the occupant load posted in a conspicuous place near the main exit of the room. [SBC 403.1.2.2 and NFPA 101 12.7.8.3]

## **VI. INTERIOR**

1. Interior finish on walls and ceilings shall be Class A or B in accordance with NFPA 101 10.2 [SBC 803.3 and NFPA 101 36.3.3.2 interior finish shall be in accordance with section 10.2.] See NFPA 101 10.2.3.4 and SBC 803.2 for classification definitions.
2. Carpet in corridors, stairs, and lobbies of unsprinklered buildings must withstand 0.22 watts/cm<sup>2</sup>, Radiant Panel Test (Class II). [SBC 803.8.2]
3. Carpet on walls and ceilings must be Class A. [SBC 803.5]

## **VII. MECHANICAL**

1. Penetrations of stairwells such as steam lines, gas lines, water lines, electrical conduit, and duct are prohibited. Only sprinkler piping, standpipes, electrical conduit serving the stairwell and ductwork and other equipment necessary for stair pressurization are permitted. [SBC 1006.1.3.1, SMC 408.1, and NFPA 101 7.1.3.2.1(6)]

2. Fire dampers are required where ductwork penetrates a one or more hour fire rated wall. They may be omitted in 1hr fire rated walls where the duct penetrating the wall is not greater than 100 square inches, there is no duct opening within five feet of each side of the wall, the duct material is a minimum of 26 gauge steel, and the duct is located above the ceiling. [SMC 610.1 and SBC 705.1.2.2.1]
3. Ductwork penetrating a fire rated horizontal assembly (floor-ceiling, roof-ceiling) must be enclosed within a fire rated shaft (1hr for 3 stories or less, 2hrs for 4 stories or more). Fire dampers may be used in lieu of a shaft where only one floor is penetrated. [SBC 705.6.4.1, SMC 610.4, and NFPA 90A 5.3.4.1 and 5.3.4.3.1]
4. Ductwork penetrating **non**-fire rated horizontal assemblies (floor-ceiling, roof-ceiling assemblies) must be equipped with a fire damper where the duct connects no more than 3 stories. Ducts connecting 4 or more stories must be enclosed in a fire rated shaft. [SBC 705.6.4.3]
5. Provide fire/smoke combination dampers in transfer air grille openings through fire rated walls. A smoke damper is required at transfer openings for unrated walls that must resist the passage of smoke such as a smoke barrier or smoke partition. [NFPA 101 8.3.4.1, 8.4.6.2, SMC 610.3 and 610.1.2(1)]
6. Smoke dampers must be installed in duct penetrations of smoke barriers, unless the duct is a part of a smoke removal system. [SMC 610.3, 2002 NFPA 90A 5.3.5, NFPA 101 8.5.4, and SBC 705.1.2.3]
7. Ceiling dampers or other methods of protecting openings in rated floor- or roof-ceiling assemblies shall comply with the construction details of the tested floor- or roof-ceiling assembly or with listed ceiling air diffusers or listed ceiling dampers. [NFPA 90A 5.4.4.1, SMC 610.2, SBC 705.6.4.2]
8. Where air ducts and openings for air ducts are used in a fire rated floor or roof-ceiling assembly all materials and the construction of the assembly, including the air duct materials, and the size and protection of the openings, shall conform with the design details of its listing. [NFPA 90 A 5.3.3.1]
9. Systems with a fan capacity less than 2,000 CFM and which serve a means of egress must have automatic shutdown. [SMC 406.2]
10. Systems from 2,000 to 15,000 CFM must have a duct mounted smoke detector mounted in the supply duct downstream of all filters [2002 NFPA 90A 6.4.2.1(1)] and in the return air stream prior to any exhausting from the building or mixing with fresh air makeup. [SMC 406.1] These detectors must be wired to a central control panel which is constantly monitored or be wired to a general building alarm. [2002 NFPA 90A 6.4.4]
11. Systems over 15,000 CFM must have duct mounted smoke detector shutdown and smoke dampers in both the supply and return ducts to isolate the fan from the duct system. [2002 NFPA 90A 4.3.9.2] These detectors must be wired to a central control panel which is constantly monitored or be wired to the general building alarm. [2002 NFPA 90A 6.4.4]
12. An exit access corridor cannot be used for return or exhaust from adjoining air conditioned spaces through louvers or other devices mounted in corridor doors, partitions, or ceilings. [SBC 1005.3.1] Except in SBC group I and R occupancies, this may be waived where corridors are equipped smoke detectors arranged to automatically stop supply, return and exhaust and close louvers or other devices mounted within the corridors doors, partitions, or ceilings. [SBC 1005.3.2]

13. Combustible material may not be used within a return air plenum unless it is tested for that application. [2002 NFPA 90A 4.3.10.2.6, SBC 707.2, and SMC 609]
14. Provide information showing how combustion air and ventilation are provided for the room containing fuel fired equipment. [SMC 704 and 2002 NFPA 54 8.3] Show size, free area, location of vents within 12" above finished floor and 12" below ceiling, and 1/4" corrosion resistant exterior screen. [SMC 615]
15. Kitchen commercial cooking exhaust hood and duct systems for removal of grease-laden vapor must comply with 2001 NFPA 96 and SMC 504. Essential features of the system must be described in the specifications or plans and shop drawings must be submitted and approved prior to installation. [Rule 0780-2-3-.03(3)] Hood suppression systems must meet UL 300. Shop drawing information is generally a stipulation on the plans approval. Provide hood and duct design intent information.
16. Gas lines may not penetrate a four-hour firewall. The areas are considered separate buildings. [1999 Standard Gas Code 310.2.2]
17. Gas piping is not permitted to be installed in concealed spaces unless 1) pipe is joined only by fittings such as elbows, tees, and couplings; 2) tubing is joined by brazing; 3) the fittings are listed for use in concealed space; or 4) where unavoidable to add fittings into the pipe, the pipe shall be reconnected by welding, flanges, or the use of a ground joint union with the nut center-punched to prevent loosening by vibration. Unions, tubing fittings, right and left couplings, bushings, swing joints, and compression couplings made by combinations of fittings shall not be used in concealed locations. [2002 NFPA 54 6.3.2]
18. Gas piping valves must not be located in non accessible spaces or more than six feet away from the appliance being served. [NFPA 54 8.5.4]
19. A separate and individual ventilation system, not part of any other system, must be provided for ventilation of each room or space containing flammable vapors, combustion vapors, noxious gases, and flammable dusts. [SMC 401.2]
20. Chimney, vent, or sanitary sewer exhaust outlets within ten feet of fresh air intakes must be at least two feet higher than the intake. [SMC 405]
21. Chimneys must extend three feet above the roof and at least two feet above any part of the roof within a ten foot radius. [SMC 803.4]
22. The exhaust outlet ducts and ducts serving commercial cooking and processing equipment must terminate outside the building and must be located ten feet from any adjacent building, parking area, adjacent property line, window, door or air intake opening and must be at least ten feet above adjoining grade level and must terminate at least 40 inches above roof surface. [SMC 506.1]
23. Dryer ducts must be installed per the equipment manufacturer's instructions or the methods described in SMC 509.2.
24. Where earthquake loads are applicable according to the SBC, mechanical equipment, piping, and ducts must be designed and installed to resist the seismic forces in the SBC. [SMC 301.4.1]

25. Atriums must be automatically vented. The following must operate the system independent of each other: [NFPA 101 8.6.7]
  - a. Smoke detectors at the top of the space, and adjacent to each return air intake, and
  - b. By the automatic sprinkler system, and
  - c. Manually.
26. Provided listed exhaust fan to operate at the design conditions of smoke and fire. Show model of smoke exhaust system that meets UL category UUKL. [2000 NFPA 92B 4.2]

## **VIII. FIRE SUPPRESSION**

1. Complete sprinkler shop drawings and calculations must be submitted for review and approval prior to installation. They must be signed by a responsible managing employee, and submitted by a registered fire protection sprinkler contractor. [Rule 0780-2-7-.09] Shop drawing information is generally a stipulation on the plans approval. Provide sprinkler design intent information.
2. All piping from the “point of service” including underground used for sprinkler or standpipe system must be installed by a registered sprinkler contractor. [Rule 0780-2-7-.08] If there is an existing sprinkler system in the building a registered sprinkler contractor must inspect, test, and provide a letter of acceptance for the existing system.
3. Provide general layout of sprinkler system and show main risers, related electrical connections, available water supply and design water demand. [2002 NFPA 13]
4. Class I wet standpipes must be provided in all buildings where the highest floor is 30 feet above the lowest level of fire department access. [SBC 904.2.1 and SBC 904.3.1] Standpipe hose connections must be located per 2003 NFPA 14 5.4.1.
5. Provide a 250 GPM fire department hose outlet at locations identified in SBC 904.3.3 and SBC 413.9.
6. Provide a fire pump schematic with all-component parts and alarms per 1999 NFPA 20.
7. Portable fire extinguishers must be provided in all mercantile occupancies. [NFPA 101 36.3.5.3]

## **IX. ELECTRICAL**

1. Provide emergency lighting for all means of egress and in Class A and B stores. [NFPA 101 36.2.8 and 36.2.9]
2. Emergency lighting must have stand-by power source, [NFPA 101 7.9.2, 2002 NFPA 70, Article 700, and SBC 1016.2.1] automatically providing the required illumination in the event of any interruption of normal lighting in areas where emergency lighting is required by SBC 1016 and NFPA 101 7.8, due to any of the following:
  - a. Failure of a public utility or other outside electrical power supply.
  - b. Opening of a circuit breaker or fuse.
  - c. Manual act(s), including accidental opening of a switch controlling normal lighting facilities.

3. Exit signs must be visible from all directions of travel. [NFPA 101 7.10.1.2 and SBC 1016.3.1]
4. Exit signs must have an emergency power source or be a listed self-illuminating type sign. [NFPA 101 7.10.4]
5. Recessed light fixtures in rated ceilings must be protected or be listed for use in a rated assembly. [SBC 705.4]
6. A fire alarm system is required in Class A occupancies or occupancies where more than 100 persons are above or below the street floor level. [SBC 905 and NFPA 101 36.3.4.1 in accordance with NFPA 101 9.6] Provide fire alarm per NFPA 72. (See Fire Alarm Correction List)
7. Where the emergency generator is used for back-up power, it must provide power within ten seconds. [NFPA 101 7.9.1.3]
8. A three-foot horizontal clearance must be maintained from floor to ceiling in front of electrical panel. Clearance may not be used for storage and may not contain ductwork, piping, etc. [2002 NFPA 70 110.26 Table 110.26(a)(1)]
9. Electrical outlet boxes located on opposite sides of rated walls must be separated by a 1 horizontal distance of 24 inches. [SBC 705.5.2]
10. Smoke detectors controlling hold open devices must be located in accordance with 2002 NFPA 72 5.14.6.
11. Hold open devices must release in accordance with NFPA 101 7.2.1.8.1, and must be tied into the fire alarm system per NFPA 101 9.6.5.2.
12. Nonmetallic-sheathed cable (types NM and NMC) may not be used in fire resistive components of a building with an assembly occupancy over 50, in a four or more story building, or in Type I or II construction. [NFPA 70 336.4 and SBC 706]
13. Provide balanced electrical panel load schedules. [NFPA 70 220.3 and 220.4]
14. Show the following electrical and fire alarm connections: [Could be by specifications.]
  - a. Location of connections of all air handling shutdowns.
  - b. Location of connections to the kitchen hood fire extinguishing system that activates the fire alarm system. Show other required shutdowns in the event the extinguishing system is activated.
  - c. Location of all connections to shunt trip circuit breakers and gas solenoid valves - unless a mechanical gas line shut-off is specified.
  - d. Location of flow switch or alarm check valve connection to the general building alarm and central station or fire department.
  - e. Location of supervisory alarm connection from tamper switches on sprinkler system.

15. Electrical equipment rated for 1200 amperes or more and over 6 ft (1.83 m) wide, containing overcurrent devices, switching devices, or control devices, there shall be one entrance not less than 32 in. (810 mm) wide and 6 1/2 ft (1.98 m) high at each end of the working space. [NFPA 70 110-26 C(2). Both entrances shall open in the direction of the egress and be equipped with panic bars, pressure plates, or other devices that are normally latched but open under simple pressure. [2002 NFPA 70 110.26.C(2) and 2003 NFPA 101 7.2.1.2.4 ]
16. Dry-type transformers installed indoors and rated 112 1/2 kVA or less shall have a separation of at least 305 mm (12 in.) from combustible material unless separated from the combustible material by a fire-resistant, heat-insulated barrier. [NFPA 70 450.21]
17. Individual dry-type transformers of more than 112 1/2 kVA rating shall be installed in a transformer room of minimum 1 hour fire-resistant construction, unless specified otherwise in article 2002 NFPA 70 450.21(B).